Teacher Notes
Grades 5–8 Activity 4

Millions of Years Ago

NJ Core Curriculum Standards:
- Compare information presented at different scales. (Social Studies 6.7.10.)

GEPA in Science Content/Skill Outlines:
- Use tables, charts, and graphs to describe patterns and infer relationships. (5.5.5.6.7.8.9.10—Skills)
- Data can be represented numerically and graphically. (5.5.5.6.7.8.9.10—Knowledge)
- Use table, charts, and graphs to describe patterns and infer relationships. (5.5.5.6.7.8.9.10—Skills)

Teacher Background: When Earth formed 4.5 billion years ago, it was a planet of hot, molten rock. By about 3 billion years ago, the rock had cooled and solidified and the oceans had formed. At the beginning of the Paleozoic Era, 570 million years ago, living things existed in the ocean but were not yet abundant. There was no life on dry land. These enormous spans of time make the extinction of the dinosaurs 65 millions years ago seem like a recent event. Read how the formation of the rocks and sediments found in New Jersey fit into the history of Earth.

Materials: A roll of adding machine tape; meterstick; metric ruler with millimeters marked; red, blue, yellow, and green markers; photocopies of the "Geologic Time Scale" table on the back cover of the *New Jersey Rocks and Sediments* booklet.

Advance Preparation: Cut a 5-meter strip of adding machine tape for each group of students. Make one photocopy of the table on the back of the *New Jersey Rocks and Sediments* booklet for each group of students.

Directions: This activity may be done individually but is most effective when students work in groups of four. Have two students roll out the paper strip, one student interpret the geologic time scale, and the fourth student mark the measurements and labels on the time line. In addition to the steps on the Student Activity Sheet, you may also wish to have students label the geologic periods listed in the third column of the table. When student finish, have them line up and compare their time lines. Ask them to analyze any differences they find and make corrections where needed.

Discussion/Journal Entry Question:
- Which era or eon was the longest? (*Analyzing Data*)
- Our species has existed on Earth for about 1.5 million years old. How would you show this on the time line? (*Communicating*)

Suggested Evaluation: Collect students' time lines and assess them for completeness and accuracy.

Name _____ Date _____

Student Activity Sheet for Activity 4

MILLIONS OF YEARS AGO

Some New Jersey rocks and sediments are old. Others are very, very old. You'll compare their ages in this activity.

1. Use a meterstick to draw a straight line from one end of a 5-m paper strip to the other end. Make a dot at the right end of the line and label it "The Present."

2. Use a scale of 1 millimeter = 1 millions years. With a millimeter ruler, mark a dot 2 mm to the left of your first dot. This shows the past 2 millions years on your time line. Above the line, write the number of the New Jersey rock or sediment sample that was formed during the past 2 million years.

3. Draw a dot on the time line at 67 millions years ago. Write the numbers of the New Jersey rock and sediment samples that were formed between 2 and 67 million years ago.

4. Repeat step 3 for the rest of the dates in first column of the "Geologic Time Scale" table.

5. Read the second column in the table. Use a red marker to underline from the present to 67 million years ago. Label it "Cenozoic Era." Use a green marker for the Mesozoic Era, yellow for the Paleozoic Era, and blue for the Proterozoic, Archean and Pre-Archean Eon.

6. How can you explain the fact that the sediments are mostly the youngest specimens?

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